

Interactive comment on “Single particle analysis of ice crystal residuals observed in orographic wave clouds over Scandinavia during INTACC experiment” by A. C. Targino et al.

Anonymous Referee #2

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This paper reports on the results of the SEM/EDX single-particle analysis over ice crystal residual particles collected in orographic clouds over Scandinavia during the INTACC experiment. Different types of particle classes and their relationship to air mass history and cloud phase have been reported and discussed. In general, the subject of the manuscript and type of the data presented in the manuscript is of substantial significance and interest for the atmospheric research community and is appropriate for publication in ACP. However, the manuscript in its present form is far longer than necessary to deliver its main conclusion. I would strongly recommend shortening of the manuscript. Specifically, the manuscript discussion is solely focused on the particles

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collected during the flight A718. Therefore, description of air masses and specific particle types found in all other flights has only minor relevance to the presented subject and can be safely edited down to ~50% or so of its present volume. Also, I see absolutely no value in presenting specific descriptions of particle types comprising groups 9-12. The (absolute) uncertainty in the estimation of particle-type abundance based on N observations in particle class is about square root of N which corresponds to 30-50% of the relative error in groups 9-12. Therefore, I would suggest combining all particles in these groups, perhaps even those in groups 6-8 as well, in one unspecific class “others”, eliminating at least sections 3.4.9-3.4.11 of the results and discussion and shortening text in other places where needed. Appropriate revisions of tables and figures will be also required. Narrative of the quality control procedure in the summary section (p. 8078, lines 11-24) is redundant; it has been already discussed on p. 8064.

Interactive comment on Atmos. Chem. Phys. Discuss., 5, 8055, 2005.

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